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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,487	07/11/2003	Peter Green	IR-2325 (2-3580)	5418

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EXAMINER
DINH, TRINH VO

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,487	GREEN, PETER	
	Examiner	Art Unit	
	Trinh Vo Dinh	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 4, the limitation "the input trigger circuit is non-responsive to a pulse duration of said pulsed input signal" in claim 4 finds no support in the specification.

Drawing

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "an input trigger circuit", "pulsed input signal" in claim 1, and "a shut down circuit" in claim 5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 8 is objected to because of the following informalities:

In claim 8, line 3, "the supply voltage" should be changed to --a supply voltage— because there is no antecedent basis for the supply voltage. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5, 7-14, 16-18 draw to the apparatus and the method claims 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu et al (USP 5,598,326).

With respect to claims 1 and 10, Liu discloses a driver circuit (in Fig. 4) comprising an input trigger circuit (col. 7, lines 48-60) receiving a pulsed input signal (C) for controlling the generation of two drive signals (signal to Q1, Q2), a first drive signal driving a high side switch of a half bridge switching circuit (Q1, Q2) and a second drive signal driving a low side switch of the half bridge switching circuit (Q1, Q2), a circuit for providing a dead time between the first and second drive signals whereby both the first and second drive signals are substantially zero (col. 7, lines 48-60 and Fig. 5), the input trigger circuit generating a control signal for controlling the generation of the first and second drive signals based on a characteristics (pulse edge of the pulsed input signal C, D) of the pulsed input signal, and first and second drive circuits (32, 33) for providing said first and second drive signals.

With respect to claims 2-3 and 11-12, Liu discloses, in Fig. 5, the characteristic of the pulsed input signal comprises a pulse edge of the pulsed input signal whereby when a pulse edge occurs, the first and second drive signals change state with said dead between the drive signals, or the characteristic comprising a rising edge.

With respect to claims 4-5 and 13-14, Liu discloses a shut down circuit (50) receiving a shut down input for disabling the generation of said first and second drive signals (col. 8, lines 38+), and the input trigger circuit being non-responsive to a pulse duration of the pulsed input signal (the input trigger circuit is non-responsive to a pulse duration of the pulsed input signal when the shut down circuit disables the drive signals).

With respect to claim 7 and 16, Liu discloses a circuit (in Fig. 4) for generating said first and second drive signals with approximately a 50% duty cycle (in Fig. 5).

With respect to claims 8 and 17, Liu discloses an under voltage lockout circuit (36-40) for preventing generation of said first and second drive signals until a supply voltage for the driver circuit has stabilized.

With respect to claim 9 and 18, Liu discloses a level shifting circuit (34 in Fig. 4) for shifting a level of a signal driving at least one of said first and second drive circuits (32, 33).

With respect to method claims 19-21, the apparatus discussed above in claims 1-3 would perform the claimed method.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Takehara et al (USP 6,031,736).

Liu discloses every feature of the claimed invention except a microprocessor. Takehara discloses a pulsed input signal (a gate pulsed signal in Fig. 3) being generated by a microprocessor (5). It would have been obvious to one having ordinary skill in the art to employ Takehara's teaching of utilizing the microprocessor to generate a pulsed signal because microprocessor-generated-pulse signal provided more advantages and features to circuits than a non microprocessor such as dynamics, hardware/software controllable adjustability, programmability etc.

Citation of relevant prior art

9. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gu et al (5,510,974) discloses a driver circuit having a circuit for providing a dead time between drive signals of a half bridge switching circuit.

Forghieri (6,541,926 B1) discloses a half bridge driver integrated circuit for switching circuit.

Steigerwald et al (4,685,040) discloses an integrated circuit for driving a half bridge switches.

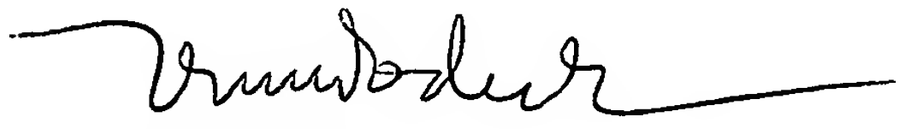
Inquiry

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art unit 2821



Trinh Vo Dinh
May 06, 2004